REMARKS

Objection to Title

Applicant proposes to change the title to match the preamble of claim 1.

Section 101 rejection of claims 11-13

The Examiner rejects claims 11-13 as being directed to non-statutory subject matter. However, those claims depend on independent claim 10, which recites statutory subject matter. Since claims 11-13 already include the limitations of claim 10, it is unclear, as a matter of logic, how they can recite non-statutory subject matter.

Section 101 rejection of claims 1-9 and 14

The Examiner rejects these claims because they do not require steps to be carried out by a machine.

Applicant draws attention to claims 1's step of providing scores to an output device. It is clear that this must be carried out by machine. Applicant also draws attention to the preamble, which refers to a method "[i]n a data-storage system." A data-storage system is clearly a machine.

Moreover, the mere fact that a claim recites steps that can be carried out by a human being does not render the claim unpatentable under section 101. For example, in *Alco Standard*,[1] the defendants argued that certain "correlating and combining steps" of a patent "are merely mental processes, and therefore, unpatentable." The Federal Circuit stated that

> "[t]he inclusion in a patent of a process that may be performed by a person, but that also is capable of being performed by a machine, is not fatal to patentability. *Diamond v. Diehr*, 450 U.S. 175, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981). The presence of the steps of correlating and combining, which a machine is capable of doing, does not invalidate the '006 patent."

The Examiner also rejects the foregoing claims because they allegedly claim an abstract idea that does not produce a useful, concrete and tangible result.

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[1] *Alco Standard v. Tennessee Valley Authority*, 808 F.2d 1490 (Fed. Cir. 1986).

Claims 1 and 14 both recite methods for causing a computer to

- execute one algorithm (the incumbent algorithm) and
- simulate the performance of one or more different algorithms (the competing algorithms).

The claimed methods also include providing scores indicative of how well these algorithms performed. In effect, the method provides a way to "grade" how well several algorithms might perform had they been executing instead of an incumbent algorithm. This is a useful result because it provides a way to choose which of several algorithms to use in processing an input-data stream in a data storage system, as the properties of the stream change.

Section 102 rejection of claim 1

***Cooper* discloses simulating a network, not simulating an algorithm**

As indicated on page 4 of the second office action, it is the Office's position that a "base-line network simulator" corresponds to "an incumbent algorithm."

Applicant agrees that the "base-line network simulator" is an algorithm, and not a network. As its name implies, it is an algorithm whose function is to "simulate." But what, precisely, does it simulate?

The answer is clear from its name. A "base-line network simulator" simulates a *network.* Thus, a "base-line network simulator" is an *algorithm* that simulates a *network.*

Because a network is not an algorithm, it logically follows that:

- simulating a network is not the same as simulating an algorithm, and
- an algorithm that simulates a network is not the same as an algorithm that simulates an algorithm.

On page 6 of the Office Action, the Examiner observes that Applicant's claims do not requires an actual network.

The foregoing remark suggests that the Examiner misunderstands the specification. Applicant's specification does not discuss simulating networks; it discusses simulating algorithms. Applicant was merely pointing out that the method of *Cooper*, which involves only simulating a network, and not evaluating a network, does not require an actual network to be carried out. The distinction between simulating and evaluating is developed more fully in the following section.

***Cooper* discloses simulating, and not evaluating network performance**

As noted in the preceding section, the claimed subject matter is directed to performance of *algorithms*, and not to performance of *networks*. For this section of the response, Applicant ignores this difference to focus on the distinction between "simulating" and "evaluating."

"Evaluating" and "simulating" mean different things. "Simulating" performance of an algorithm refers to predicting how that algorithm *would have* performed had it actually been executed. "Evaluating" an incumbent algorithm score refers to actually executing the incumbent algorithm and observing how that algorithm actually *did* perform. Based on the remarks made in the office actions, it is unclear that the Examiner has applied the distinction in interpreting the claims.

The Examiner appears to interpret the language:

simulating performance of a competing algorithm executing **in place of** said incumbent algorithm

as meaning the simulation of a performance (i.e., how well it performed) of a competing algorithm that is actually executing. Thus, in the Examiner's view, this step would occur if a competing algorithm were executing, and the incumbent algorithm were no longer executing. However, this interpretation makes no sense in view of the meaning of "simulating." "Simulating" suggests predicting what would have happened had something occurred, when in fact it did not. It makes no sense to "simulate" the performance of an algorithm that is already executing.

On page 5 of the office action, the Examiner suggests that nowhere does the claim language recite that the incumbent algorithm is actually executing and that the competing algorithm is only simulated. On page 6, the Examiner states that "none of the purported subject matter of the present invention is anywhere claimed in the claims."

In response, Applicant draws attention to the word "incumbent." By definition, the incumbent algorithm must be executing, since if it were not, it would no longer be "incumbent." It is unclear how the Examiner has construed the word "incumbent" or whether the Examiner has even taken note of it in construing the claim.

Section 102 rejection of claims 2 and 17

The Examiner considers step **370** of *Cooper* FIG. 3 to disclose the step of providing data indicative of a performance difference between a competing algorithm and an incumbent algorithm.

Applicant again points out that *Cooper* simulates networks, not algorithms. Hence, the ranking report in step **370** is a ranking of different kinds of *networks*, not different *algorithms*.

Applicant also points out that *Cooper* has no "incumbent" network. All the networks listed in the ranking report are at best regarded as "competing networks." This is because none of the networks ranked in step **370** actually has to exist.

Section 102 rejection of claims 3 and 18

The Examiner draws particular attention to a passage stating that the information used to create a baseline simulation includes "data transmissions occurring in the network during a given interval."

The cited passage does not amount to claim 3's step of "monitoring said incumbent-algorithm score and said competing-algorithm score during a selected interval." The word "monitoring" suggests observing something unfold in time. If one has specified in advance the number of data transmissions in a given interval, there is clearly no need to monitor anything

during that interval to count how many transmissions there were. In fact, one advantage to simulation is that one need not even wait for an interval to unfold.

Moreover, the claim language refers to monitoring a score during an interval. The cited passage fails to disclose monitoring anything like a score during an interval. In fact, the best that can be said about the cited text between column 8 line 66 and column 9 line 8 is that it includes the word "interval," which is also in the claim.

Section 102 rejection of claims 5 and 20

The Examiner concedes that *Cooper* fails to show evaluating a ratio indicative of an extent to which a competing algorithm score exceeds an incumbent algorithm score. However, the Examiner then proceeds to suggest that such a ratio is inherent because in order to assess certain performance criteria, a ratio must be established.

As a threshold matter, the claim recites scores of *algorithms*, not scores of *networks*.

A feature can be deemed inherent in a disclosure only if that feature necessarily flows from what has been disclosed. Applicant draws attention to MPEP 2112 (IV), which discusses the law of inherency. For example, the Federal Circuit has stated that

> To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."... "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743 (Fed. Cir. 1999).

The Board of Appeals has also stated that

> "In relying upon the theory of inherency , the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art" *Ex parte Levy*, 17 USPQ 2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)[emphasis in original]

It is not the case here that evaluating the ratio is claimed necessarily flows from the disclosure of cooper. It is quite reasonable to assess performance criteria by ranking, as suggested by step **370** in FIG. 3. When ranking the performance of different networks, it is not necessary to know how much better one network is than another. One only needs rankings.

Section 102 rejection of claims 6 and 21

The Examiner appears to suggest that the claimed "input-data stream" somehow corresponds to user-preference data provided in step **330** of FIG. 3.

The *Cooper* user-preference data, such as performance requirements and cost requirements for a network design, can hardly be characterized as an input-data stream. Moreover, the Examiner has already stated that the baseline network simulation corresponds to the incumbent algorithm. FIG. 3 does not indicated that the user-preference data is ever even provided to the baseline network simulation. In fact, it appears that both the baseline network simulation and the user-preference data are provided to a module for generating and evaluating options for modifying a network (see step **340**).

Claim 6 also recites "obtaining meta-data characterizing" the input-data stream. Applicant is unable to identify any meta-data characterizing the user-preference data provided in step **330**. However, based on the Examiner's remarks concerning rejection of claim 7, one example of meta-data includes information concerning equipment reliability.

To the extent information concerning equipment reliability might be construed as meta-data, it is certainly not meta-data that characterizes what the Examiner has already characterized as the input-data stream, i.e. the user-preference data provided in step **330**. Information concerning equipment reliability might more properly correspond to network architecture data received in step **310**.

Section 102 rejection of claims 7 and 22

The Examiner appears to consider "maintaining statistics descriptive of said input-data stream during a selected interval" to correspond to collection of statistics concerning equipment reliability, as described in column 9, lines 17-20.

As noted above, equipment reliability statistics can hardly be considered to describe the user-preference data, which the Examiner has already designated as corresponding to the claimed

input-data stream. Such statistics are descriptive of the equipment used in building the network, not the input-data stream that may one day exist on the network.

Section 102 rejection of claim 8 and 23

Claim 8 recites incorporating a penalty into a competing-algorithm score. The Examiner concedes *Cooper*'s failure to disclose this step, but claims that such a step is inherent because otherwise one could not rank the network simulations, as carried out in step **370**.

As discussed above, in connection with claim 5, a feature can be deemed inherent in a disclosure only if that feature necessarily flows from what has been disclosed. This is not the case here because all that is required to rank the effectiveness of each new network simulation is to have a number associated with each simulation. There is no requirement that this number be arrived at through imposing a penalty.

By way of analogy, one can rank students who take an exam regardless of whether the exam were graded by subtracting points for wrong answers or not.

Section 102 rejection of claims 9 and 24

Claim 9 recites selecting the penalty to be indicative of a cost associated with replacing an incumbent algorithm with a competing algorithm. According to the Examiner, *Cooper* does not disclose this step, but such a step is inherent because the objective of *Cooper*'s cost assessment is to determine which scenario would not be cost effective.

As discussed above, in connection with claim 5, a feature can be deemed inherent in a disclosure only if that feature necessarily flows from what has been disclosed. This is not the case here because determining whether or not something is cost effective does not require evaluation of a replacement cost. The cited language in column 9, lines 20-26 refers to costs in setting up and maintaining a network. The passage makes no mention of replacing one network with another, much less costs associated with doing so.

Section 102 rejection of independent claims 10 and 25

The Examiner concedes *Cooper*'s failure to show "statistically characterizing a usage pattern of said data-storage system." However, this is allegedly inherent to the gathering of statistical information of users of network equipment because without users using the network equipment as discussed in column 9, lines 17-20, it would be impossible to gather statistical information about its use.

The cited text refers to gathering statistical information concerning equipment reliability for components of a network. This is not information about usage patterns in a data storage system. The fact that, for example, a particular router is statistically likely to fail every five years says nothing about usage patterns of a data storage system that communicates with that router.

Moreover, the whole point of *Cooper* is to simulate a computer network. In a simulation, there *are* no users. Therefore, it is impossible to gather statistical information about how users are using the network. This is because there is no network for any users to use. The networks in *Cooper* are all being simulated. They exists only models within a computer.

Section 102 rejection of claim 11

Claim 11 recites evaluating actual performance of an incumbent algorithm in response to a usage pattern. The Examiner appears to consider this step to be carried out in step **320** of FIG. 3, i.e. the step labeled "create baseline network simulation."

However, the baseline network simulation is merely a simulation of a network. It is not an actual performance of a network (whatever that might mean). It is also not the actual performance of an incumbent algorithm. "Base-line" simply does not mean "incumbent."

Moreover, the claimed invention is directed to comparing how well different algorithms perform, not to comparing how well different networks perform.

Section 102 rejection of claim 13 and 28

Claim 13 recites incorporating a cost of replacement into a performance.

The Examiner cites language in column 9, lines 3-26 as disclosing this. However, the cited language refers to costs in setting up and maintaining a network. The passage makes no mention of a cost of replacement.

Section 102 rejection of claims 12 and 27

Claim 12 recites the additional limitation of "generating meta-data that characterizes an input-data stream to said data-storage system." The Examiner suggests this is disclosed in steps **310** and **330** of FIG. 3.

Step **310** involves receiving architecture and scenario data, i.e. hardware related data. This has nothing to do with an input-data stream. Step **330** involves receiving user-preference data, performance requirements and cost requirements for a proposed network architecture. This again has nothing to do with an input-data stream to a data storage system.

In rejecting claim 6, the Examiner has already characterized the claimed "input-data stream" as corresponding to user-preference data provided in step **330** of FIG. 3. It is unclear how that data can be both the input-data stream and meta-data characterizing the input-data stream at the same time.

Section 102 rejection of independent claim 15

Claim 15 recites "a data-condenser configured to receive a data-stream, said data-condenser generating meta-data characterizing said data stream." The Examiner appears to consider this to correspond to the GUI **240** in FIG. 2.

The Examiner has not identified what input-data stream the GUI **240** receives and what meta-data characterizing this data stream it generates. Hence, this section 102 rejection is defective.

Claim 15 also recites a competing-algorithm simulator. According to the Examiner, this is disclosed in FIG. 2 by modules **210**, **220**, and **230**. However, FIG. 2 plainly shows that module **210** is a *network* simulator. A network simulator simulates networks, not competing algorithms.

It is unclear on what basis the Examiner can construe "network" to include "competing algorithm."

Summary

Now pending in this application are claims 1-29, of which claims 1, 10, 14, 15, 16, and 29 are independent. No fees are believed to be due in connection with the filing of this response. However, to the extent fees are due, or if a refund is forthcoming, please adjust our deposit account 06-1050.

Respectfully submitted,

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